

REMARKS

This Preliminary Amendment is being submitted with a request for continued examination (RCE), and is responsive to the final Office Action dated October 21, 2003. Applicants have not amended any claims, and have added new claims 40-43. Claims 1-43 are now pending.

Amendments to the Specification

In the Office Action, the Examiner objected to certain informalities in the specification. Applicants have amended the specification consistent with the Examiner's suggestions.

Claim Rejections Under 35 U.S.C. § 112

In the Office Action, the Examiner rejected claims 13, 22 and 35 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In support of the rejection under section 112, first paragraph, the Examiner stated:

Applicant is claiming an [sic] estimating a gamma and gray balance, but the range of values of gamma and gray balance are not specified clearly in the specification. The estimation program should be included in this application.

Applicants respectively traverse this rejection.

As required by 35 U.S.C. § 112, first paragraph, Applicants must provide a disclosure sufficient to enable one skilled in the art to make and use the claimed invention without undue experimentation. In re Wright, 999 F.2d 1557, 27 USPQ2d 1510 (Fed. Cir. 1993). Applicants' disclosure clearly meets this requirement.

In particular, Applicants' disclosure describes techniques for estimating gamma and gray balance, as recited in the claims, sufficient to meet the requirements of 35 U.S.C. 112, first paragraph. For example, an exemplary process for estimation of gamma is discussed in detail at page 32, line 4, to page 35, line 4, and in conjunction with FIGS. 8-10. For example, at page 32, line 24, to page 33, line 8, Applicants describe that:

Upon display of the green patches, the user is instructed to select a patch that appears to most closely blend with the dithered background, as indicated by reference numeral 102

in FIG. 8. The green patch “blends” with the dithered background in the sense that it appears to closely match the level of the background. An example of a range of green patches displayed against a green dithered background is shown in FIG. 9 and indicated by reference numeral 132. This range of green patches and the green dithered background can be displayed in a web page served by color profile server 18. Based on the selected green patch, which again may be selected by clicking on it with a pointing device, color profile server 18 computes a coarse gamma, as indicated by reference numeral 104 in FIG. 8. The coarse gamma determined in this step can be used as an estimate for the average gamma of R, G, and B via selection of a green patch from the set of green patches against the dithered green background.

Moreover, Applicants’ disclosure describes estimation of a coarse gamma, e.g., using the equation at page 33, line 25, followed by estimation of a fine gamma, e.g., using the equation at page 34, line 31. In particular, the user may click on a patch to define a coarse gamma, for example, at which point additional patches are presented to the user with colors that more closely match those of the selected patch. The user may then click on another patch to define the fine gamma. See e.g., page 33, line 20 to page 34, line 12. Applicants’ disclosure clearly meets the requirements of 35 U.S.C. 112, first paragraph, for purposes of estimating gamma and even lists equations that may be used to do so.

As discussed in a telephone interview with the Examiner, the same equation may be used to estimate both the coarse gamma and the fine gamma. In that case, the equation is applied with respect to a relatively broad range of values to define a coarse gamma, and then applied with respect to a more narrow range of values to define the fine gamma. As further discussed in the telephone interview, the disclosed invention does not call for any particular *range* of gamma values. Rather, gamma estimation in accordance with the invention involves an estimation of gamma for a given display device with the understanding that gamma can differ greatly from device to device. Applicants’ have recognized that that such differences in gamma across different devices should be taken into account when characterizing an imaging device in order to achieve a high degree of color accuracy. Therefore, the invention involves estimation of a gamma that is not known and must be determined for a particular imaging device.

An exemplary process for estimation of gray balance is also discussed in detail at page 35, line 5, to page 36, line 6. Also, Applicants’ disclosure further describes the gray balance estimation at page 36, line 7, to page 38, line 6, with respect to FIG. 11, e.g., using the estimated fine gamma.

Given Applicants' detailed description of exemplary processes for estimating gamma and gray balance, one of ordinary skill in the art would have no difficulty making and using the invention, as claimed. The rejection of claim 13, 22, and 35 for lack of enablement must be withdrawn because the specification clearly meets the enablement requirements by describing exemplary techniques for estimating both gamma and grey balance with scrupulous detail.

Applicants' also continue to dispute the Examiner's assertion that "the estimation program should be included in this application." There is nothing in section 112, first paragraph, or any other authority, that would require submission of a software program. In other words, there is no authority that even purports to suggest that submission of a computer program is the only way to enable an invention that implicates software. Although the Examiner is correct that a program is one type of disclosure that could enable an invention, a detailed disclosure of the technique is also clearly sufficient to meet the requirements of section 112, first paragraph.

Given the ample details disclosed by Applicants concerning gamma and gray balance estimation, it is clear that one skilled in the art of color imaging would not require undue experimentation to arrive at an implementation of the claimed invention. On the contrary, implementation of the claimed invention would require nothing more than routine effort on the part of one skilled in the art. The details provided in Applicants' specification are more than enough to enable one skilled in the art to make and practice the claimed invention. Applicants have not only described the process with explicit detail, but have also provided exemplary equations that may be used to do so. Therefore, Applicants respectfully request that the Examiner withdraw the rejection of claim 13, 22, and 35 for lack of enablement.

Claim Rejections Under 35 U.S.C. § 112, second paragraph

In the Office Action, the Examiner rejected claims 1, 12, 15, 20, 23 and 35 under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. In support of the rejection, the Examiner stated:

The omitted elements are: The non-rectangular shape limitation is considered to be unnecessary since the specification, as filed, did not describe the tapered shape as essential or critical to the operation or patentability of the claim.

Applicants respectively traverse this rejection.

In support of the rejection, the Examiner cited MPEP 2172, which prohibits omission of essential elements from the claims, but then identified the “non-rectangular shape limitation” as an omitted element. A “non-rectangular shape,” however, is recited in Applicants claims, and is therefore not an omitted element.

Without admitting that this feature is “essential,” Applicants once again respectively point out that a “non-rectangular shape” is recited in the claims. Claims 1, 15 and 23, for example, each require the display of a sequence of dark elements against a black background, wherein each of the dark elements has a different gray value and a non-rectangular shape. Accordingly, it is difficult to understand the Examiner’s concern regarding the “omission of the non-rectangular shape.” Essential or not, the feature is included in the claim.

The Examiner makes reference to the fact that “non-rectangular shape” is broad enough to cover circular, triangular/tapered shapes, or square shapes. First, Applicants point out that a non-rectangular shape would not cover square shapes because a rectangle is a parallelogram having all right angles. Thus, a square is a type of rectangle insofar as a square is a parallelogram having all right angles. A square is simply a more specific type of rectangle, i.e., a rectangle having adjacent sides of equal length.

With regard to circular, triangular, or tapered shapes, however, Applicants agree that the term “non-rectangular” would cover such shapes. However, this does not make the term “non-rectangular” indefinite. The Examiner seems more concerned with the scope of the term “non-rectangular” rather than any indefiniteness thereof. There is nothing indefinite about claims 1, 12, 15, 20, 23 and 35.

If the Examiner believes that claims 1, 12, 15, 20, 23 and 35 are too broad in that they would cover circular, triangular, or tapered shapes, then the proper analysis would be for the Examiner to find prior art that discloses Applicants’ claimed invention using such circular, triangular, or tapered shapes. However, Applicants respectfully submit that the Examiner should not, in effect, reject the scope of claims 1, 12, 15, 20, 23 and 35 under a guise of indefiniteness. If prior art similar to Applicants’ claimed invention using such circular, triangular, or tapered shapes exists, then such art should be applied in a section 102 or section 103 analysis. Applicants would then be able to address the prior art, if such art exists.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1-12, 14-21, 23-34 and 36 under 35 U.S.C. 103(a) as being unpatentable over Hill et al. (U.S. Patent Publication 2002/0093476) (hereafter Hill) in view of Engeldrum et al. (U.S. Patent 5,638,117) (hereafter Engeldrum). Applicants respectfully traverse these rejections. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Neither Hill nor Engeldrum discloses or suggests displaying a sequence of dark elements against a black background, wherein each of the dark elements has a different gray value and a non-rectangular shape, and estimating a blackpoint for a display device based on one of the dark elements selected by the user that is visible and appears to most closely match the background, as recited in Applicants' claims.

In particular, the Examiner failed to identify any feature within Hill or Engeldrum that corresponds to the display of a sequence of dark elements against a black background, wherein each of the dark elements has a different gray value and a non-rectangular shape, as recited by Applicants' claims.

As discussed in Applicants' last response, the Examiner cited Hill merely for what it does *not* disclose, stating only that "Hill et al. dose [sic] not explicitly specify a sequence of dark elements against a black background, wherein each of the dark elements has a different gray value." If Hill discloses none of the features recited in Applicants' claims, it is unclear why the Examiner cited this reference. The Examiner identified nothing in Hill which bears on the features of Applicants' claims.

Even if Hill were somehow relevant to the claimed invention, it is nevertheless unclear how a person with ordinary skill in the art would have modified Hill in view of Engeldrum. Moreover, even if a person with ordinary skill in the art were to have modified Hill in view of the Engeldrum teachings, the result would not be Applicants' claimed invention. To be sure, Engeldrum represents nothing more than the state of the art prior to Applicants' claimed invention. In particular, Engeldrum discloses the display of rectangular patches for blackpoint estimation. Again, nothing in Hill or Engeldrum discloses or suggests the display of a sequence of non-rectangular dark elements, as recited in Applicants' claims.

Dependent claims 12, 20 and 34 further specify that the non-rectangular shapes comprises letters or numbers. As detailed in Applicants' specification, letters or numbers are examples of a complex shapes which include a boundary that is longer than that of a simple shape to promote an increased perimeter for contrast. This feature is clearly lacking from Engeldrum and Hill, and can improve a user's ability to resolve differences among the sequence of dark elements. For this additional reason, claims 12, 20 and 34 should be allowed.

In summary, to the best of Applicants' understanding, Hill is irrelevant to the claimed invention, while Engeldrum highlights the fundamental differences between the prior art and the claimed invention. Neither Hill nor Engeldrum provides any suggestion of the desirability of non-rectangular dark elements, as claimed, for blackpoint estimation. Accordingly, the applied references fail to support a prima facie case of obviousness. Applicants request withdrawal of the rejection under section 103.

Applicants in no way acquiesce to any of the Examiner's characterizations of Hill and Engeldrum with respect to the features recited in any of Applicant's dependent claims. Accordingly, Applicants reserve comment concerning the many additional features set forth in the dependent claims and lacking from the applied references, and neither admit nor acquiesce in the grounds of rejections advanced by the Examiner against those claims.

New Claims:

Applicants have added new claims 40-43 to the pending application. Each of claims 40-43 recites that the non-rectangular shape comprises a complex shape including a boundary that is longer than that of a simple shape to promote an increased perimeter for contrast. This feature is not disclosed or suggested in any of the applied references. Moreover, the applied references lack any appreciation of the advantage of a complex shape including a boundary that is longer than that of a simple shape for black point correction, i.e., that it promotes an increased perimeter for contrast as recited in claims 40-43, permitting users to better resolve differences among the sequence of dark elements. The new feature recited in new claims 40-43 find support in the application, e.g., at page 2, lines 25-26.

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CONCLUSION

All claims in this application are in condition for allowance. Applicants respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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